



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2020/2021

FIRST SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF REAL ESTATE

BRE 209: BUILDING TECHNOLOGY II

DATE: THURSDAY 8TH APRIL 2021 TIME: 11.00 A.M. - 1.00 P.M.

INSTRUCTIONS:

Answer Question ONE (Compulsory) and ANY OTHER TWO Questions.

Question One (Compulsory)

- a) Define the term structure. (1 mark)
- b) Distinguish between load bearing structures and framed structures. (2 marks)
- c) State FOUR advantages of framed structures over load bearing structures. (4 marks)
- d) Define the term underpinning of buildings. (1 mark)
- e) State FIVE reasons for underpinning a building. (5 marks)
- f) State THREE purposes of dewatering during the construction stage. (3 marks)
- g) State FOUR application of retaining walls in the construction industry. (4 marks)
- h) You are working in an office on the 10th floor of a building when you notice a fire from the kitchenette. Outline in a chronological order your activities to minimize damages and loss of life due to this fire bearing in mind you have a basic training in facility fire protection program. (4 marks)
- i) Sketch and label a typical construction detail of a concrete flat roof. (5 marks)
- j) Define the term construction dewatering. (1 mark)

ANSWER ANY TWO QUESTIONS IN THIS SECTION

Question Two

- a) The primary function of a framed structure is to safely carry all the loads imposed on the building and this is a must do without deforming excessively under the load as a whole or in its parts. Describe three functional requirements that a designer must put into consideration in order to fulfil this. (6 marks)

INVOLVEMENT IN ANY EXAMINATION IRREGULARITY SHALL LEAD TO DISCONTINUATION

- b) Briefly describe TWO ways of achieving underpinning. (2 marks)
- c) Briefly describe THREE common methods of dewatering. (6 marks)
- d) Describe TWO types of standpipe and hose systems firefighting equipment. (4 marks)
- e) State TWO limitations of water extinguishers. (2 marks)

Question Three

- a) With the aid of well labeled sketches, distinguish between external and internal mastic asphalt tanking. (12 marks)
- b) State THREE factors that dictate the complexity of mechanical and electrical systems installed in buildings. (3 marks)
- c) With the aid of a clearly labeled sketch, describe an expansion joint in a building. (5 marks)

Question Four

- a) With the aid of a well labeled typical section, describe drained cavity system as a method of waterproofing basements in refurbishment works. (6 marks)
- b) Sketch and label a typical section of reinforced concrete straight stairs. (5 marks)
- c) Describe THREE main problems of poorly constructed expansion joints. (6 marks)
- d) State THREE disadvantages of using concrete flat roofs. (3 marks)

Question Five

- a) Sketch and label the main components of a gravity retaining wall. (4 marks)
- b) Other than Gravity retaining wall, state FOUR other types of retaining walls. (4 marks)
- c) State FIVE advantages of adopting off-site construction towards achieving the governments agenda 4 for provision of affordable housing. (5 marks)
- d) Describe FOUR fire prevention activities for high rise buildings. (4 marks)
- e) Briefly describe the impacts of mechanical and electrical buildings operating costs. (3 marks)